C1 4. (Twice Amended) The composition of claim 1, wherein the two biopolymers are comprised of a nucleic acid and a protein.

5. (Twice Amended) The composition of claim 1, wherein one reversible linkage is formed through a trityl derivative, a chelate complex, a hydrophobic interaction or a photocleavable functionality.

6. (Twice Amended) The composition of claim 1, wherein the insoluble support is selected from the group consisting of a flat surface, a microtiter plate, a comb and a bead.

7. (Twice Amended) The composition of claim 6, wherein the insoluble support is selected from the group consisting of a silicon wafer, glass plate, metal, plastic, film and composites thereof with pits or wells.

8. (Twice Amended) The composition of claim 7, further comprising two or more additional linked biopolymers, wherein the biopolymers are linked to the insoluble support in an array format.

9. (Twice Amended) The composition of claim 7, wherein the support comprises an inorganic material selected from the group consisting of silica, Controlled Pore Glass (CPG), plastic, metal, cellulose, agarose and dextran cross—linked with epichlorohydrin.

10. (Twice Amended) The composition of claim 6, wherein the insoluble support comprises a magnetic or electromagnetic material.

11. (Twice Amended) The composition of claim 2, wherein the nucleic acids are selected from the group consisting of deoxyribonucleic acid (DNA), ribonucleic acid (RNA) and analogs or mimetics of DNA or RNA.

12. (Twice Amended) The composition of claim 3, wherein the polypeptides are selected from the group consisting of an antibody, enzyme, receptor and peptide.

C1

13. (Twice Amended) The composition of claim 1, further comprising a spacer between the first biopolymer and the insoluble support.

14. (Twice Amended) The composition of claim 4, wherein the reversible linkage between the nucleic acid and the polypeptide comprises a chelate complex.

15. (Twice Amended) The composition of claim 14, wherein the chelate complex is formed by the reaction of a nucleic acid containing a chelate functionality with a polypeptide containing an imidazolyl functionality in the presence of a metal ion.

16. (Twice Amended) The composition of claim 14, wherein the chelate complex is formed by the reaction of a nucleic acid containing an imidazolyl functionality with a polypeptide containing a chelate functionality in the presence of a metal ion.

17. (Twice Amended) The composition of claim 15, wherein the polypeptide is an enzyme.

18. (Twice Amended) The composition of claim 17, wherein the enzyme is an alkaline phosphatase.

19. (Twice Amended) The composition of claim 18, wherein the enzyme is bacterial alkaline phosphatase (BAP).

20. (Twice Amended) A method for preparing the composition of claim 1, comprising the steps of:

a) immobilizing a nucleic acid to an insoluble support via a first reversible linkage; and

b) conjugating said nucleic acid with a polypeptide via a second reversible linkage.

C2

44. (Twice Amended) The composition of claim 1, wherein:

the first biopolymer is a nucleic acid;

the insoluble support is linked via a spacer to the nucleic acid through a reversible heterobifunctional trityl group;

C2

the second biopolymer is an enzyme; and

the nucleic acid is conjugated to the enzyme through a reversible chelate complex.

45. (Twice Amended) The composition of claim 44 in which the insoluble support is comprised of magnetic beads; the chelate complex is formed via a nitrilotriacetic acid functionality in the presence of Ni^{2+}; and the enzyme is BAP-his_6.

46. (Twice Amended) The composition claim 44 in which the insoluble support is a silicon wafer carrying the reversible functionalities to bind the nucleic acid either directly on the surface or through beads in pits or wells in an array format; the chelate complex is formed via a nitrilotriacetic acid functionality in the presence of Ni^{2+}; and the enzyme is BAP-his_6.

47. (Twice Amended) The composition of claim 44 in which the insoluble support is the filter bottom in the wells of a microtiter filter plate; the chelate complex is formed via a nitrilotriacetic acid functionality in the presence of Ni^{2+}; and the enzyme is BAP-his_6.

48. (Twice Amended) A method of purification, comprising: contacting the composition of claim 44 with products of nucleic acid amplification procedures, whereby the products are purified.

C3

50. (Twice Amended) A method of sequencing a target nucleic acid, comprising sequencing target nucleic acid wherein nucleic acid bound to the composition of claim 44 serves as a primer.

51. (Twice Amended) A method for genetic or expression profiling, comprising contacting the composition of claim 44 with a sample comprising mRNA or cDNA, thereby detecting the identity and relative quantity of the mRNA or cDNA.

C4

53. (Amended) The composition of claim 16, wherein the polypeptide is an enzyme.